

changing the detected impedance in accordance with a predetermined operating parameter of the sensor in the step of detecting the impedance; and

limiting a change of the detected impedance to be within a predetermined change rate.

20. (Amended) A method of controlling a gas concentration sensor comprising the steps of:

detecting an impedance of the sensor from a voltage of the sensor and a current of the sensor;

detecting a gas concentration with the sensor;

changing the detected impedance in accordance with a predetermined operating parameter of the sensor in the step of detecting the impedance; and

outputting a signal of the detected impedance through a low pass filter.

21. (Amended) A method of controlling a gas concentration sensor comprising the steps of:

detecting an impedance of the sensor from a voltage of the sensor and a current of the sensor;

detecting a gas concentration with the sensor; and

limiting the detected impedance to a limited range of change when the detected impedance changes more than a predetermined rate.

22. (New) A method of controlling a gas concentration sensor comprising the steps of:

detecting impedances of the sensor from a voltage of the sensor and a current of the sensor a plurality of times; and

using an average of at least two of the detected impedances as a current detected impedance.

Kindly add the following new claims: